PIPING PLOVER POPULATION REGULATION ON A REBUILT BARRIER ISLAND.
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Conservation of imperiled organisms requires an understanding of the factors that determine species distribution and abundance. To this end, we studied piping plover (*Charadrius melodus*) population dynamics and regulation on Westhampton Island, New York, in 1993-2003. Piping plovers colonized a portion of the island after storms formed new nesting and foraging habitat. The population grew to apparent carrying capacity, and then declined as nesting habitat decreased due to development and succession. Piping plover nesting densities were greater on beaches adjacent to protected intertidal flats that harbored abundant prey and densities than on beaches in a reference area not adjacent to such flats. Immigration/emigration was the only density-dependent vital rate. These results suggest that piping plover densities are dictated by the richness of local food resources and that, for each specific level of food abundance, the number of pairs supported by an area is dependent upon the amount of nesting habitat present. We recommend habitat management that creates or maintains wide beaches adjacent to tidal flats. This can be accomplished using the same techniques currently used to nourish beaches for property protection. Predator management will be required to allow rapid population growth in, and emigration from, such areas.